APPENDIX H

Limited Diagnostic Operator Training Requirements (Didactic Portion)

Students must meet the prerequisite requirements of item 1 of subparagraph b of paragraph 2 of subdivision a of Subsection 1 of Section 33-10-06-03 and complete the training requirements of this appendix.

Training requirements have been divided into two sections, didactic instruction and clinical experience/supervision. Upon completion of didactic training, the individual must complete the clinical experience requirements of either subdivision a and b of subsection 2 and demonstrate competence for examinations listed in Appendix I. Records must be maintained to demonstrate compliance with these requirements.

1. Didactic instruction section: Individuals shall complete a minimum of eighty hours of didactic training at a single course providing the minimum hours of instruction in the subjects below. Correspondence course work cannot exceed twenty percent of the eighty-hour course (sixteen hours maximum). The course content should approximate the outline below. The eighty-hour course is subject to Department approval. Individuals must also complete the three-hour self study course designed by the State Health Department. An examination is required to demonstrate successful completion of a course.

   a. Basic X-ray Physics — 12 hrs.
      - general description of production of X-rays
      - function of filtration and effects it has on X-ray beam
      - collimation
      - types and function of beam limiting devices
      - design, features and function of X-ray tube

   b. Radiobiology — 1 hr.
      - effects of ionizing radiation to the human body
      - factors that cause somatic and genetic damage

   c. Radiation Protection — 6 hrs.
      - ALARA concept
      - shielding materials
      - radiation quantity and units of measurement
      - basic interactions of X-ray with matter
      - primary and secondary scatter
      - importance of time, distance, shielding
      - maximum permissible dose-occupational/public
      - latency period
      - patient protection

d. Principles of Exposure — 15 hrs.
- factors that control and influence radiographic quality
- properties of X-rays
- size distortion caused by geometric parameters
- parameters which cause shape distortion
- technique factor selection
- 15% rule, mAs and kVp relationship
- grid-types, ratios, and how they affect image quality
- intensifying screens
- X-ray film
- artifacts
- inverse square law

e. Darkroom Procedure and Processing — 4 hrs.
- film storage and handling
- film processing and troubleshooting
- design, features and function of a processor
- silver recovery
- quality assurance/quality control

f. Anatomy and Positioning
1. Chest — 4 hrs.
2. Abdomen — 4 hrs.
3. Extremity — 8 hrs.
4. Spine — 8 hrs.
5. Skull — 8 hrs.